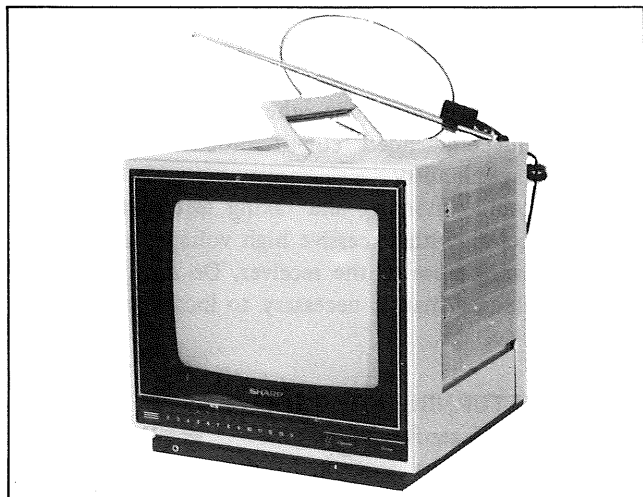


# SHARP SERVICE MANUAL

S73859H102///



## COLOR TELEVISION SIGMA 7000 CHASSIS

Chassis No. H5

**MODEL 9H102**

For further Technical information and Adjustment procedures, Refer to "H5" Chassis Technical Manual.

### ELECTRICAL SPECIFICATIONS

ANTENNA INPUT IMPEDANCE	300 ohm balanced
CONVERGENCE	Magnetic
FOCUS	Hi-Bi-Potential Electrostatic
AUDIO POWER OUTPUT RATING	0.7 Watt (at 10% distortion)
INTERMEDIATE FREQUENCIES	
Picture IF Carrier Frequency	45.75 MHz
Sound IF Carrier Frequency	41.25 MHz
Color Sub-Carrier Frequency	42.17 MHz (Nominal)
PICTURE SIZE	41.7 sq. in.
POWER INPUT	120 Volts AC, 60 Hz, 12 Volts DC
POWER RATING	52 watts (AC), 57 watts (DC)
SPEAKER SIZE	3" PM 0.34 oz. Magnet
VOICE COIL IMPEDANCE	8 ohm at 400 Hz
SWEEP DEFLECTION	Magnetic
TUNING RANGES	VHF-Channels 2 thru 13 UHF-Channels 14 thru 83

### SHARP ELECTRONICS CORPORATION

Executive Office:	10 Sharp Plaza,	Paramus,	New Jersey	07652	(201) 265-5600
Regional Offices & Distribution Centers:	2 Sharp Plaza,	Paramus,	New Jersey	07652	(201) 265-5600
	20600 S. Alameda St.,	Carson,	Calif.	90810	(213) 637-9488
	430 E. Plainfield Rd.,	Countryside,	Illinois	60525	(312) 482-9292
U.S. Subsidiary of Sharp Corporation, Osaka, Japan					
Parts Centers:	P.O. Box 664	Paramus,	New Jersey	07652	(201) 265-5600
	20600 S. Alameda St.,	Carson,	Calif.	90810	(213) 637-9488
	430 E. Plainfield Rd.,	Countryside,	Illinois	60525	(312) 482-9292

## IMPORTANT SERVICE SAFETY PRECAUTION

- Service work should be performed only by qualified service technicians who are thoroughly familiar with all of the following safety checks and servicing guidelines.

### WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver is hot. (connected to one side of the AC line).  
To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.

### SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm Resistor in series with an insulated wire (such as a test probe) between the chassis and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatter-proof goggles and after discharging the high voltage anode completely.

### X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential sources of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-ray radiations if the high voltage is as specified in the "High voltage check" instructions.  
It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter. The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value — no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and, also, under certain conditions, may produce radiation in excess of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.

### X-RADIATION AND HIGH VOLTAGE LIMITS

(Continued)

5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver. Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

### BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

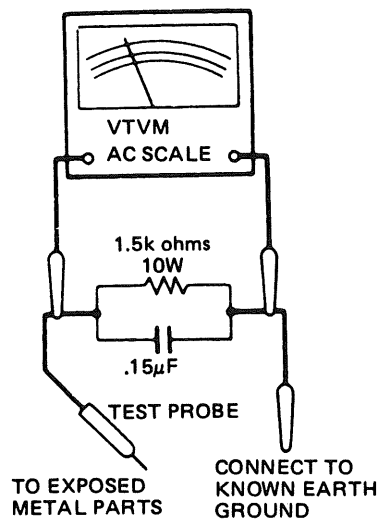
Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.
  - Plug the AC line cord directly into a 120 volt AC outlet (Do not use an isolation transformer for this test).
  - Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 $\mu$ F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
  - Use a VTVM or VOM with 1000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor (See Diagram).
  - Connect the resistor connection to all exposed metal parts having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these checks.)

Any reading of 0.3 volt RMS (this corresponds to 0.2 milliamp. AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

## IMPORTANT SERVICE SAFETY PRECAUTION (Continued)



### SAFETY NOTICE

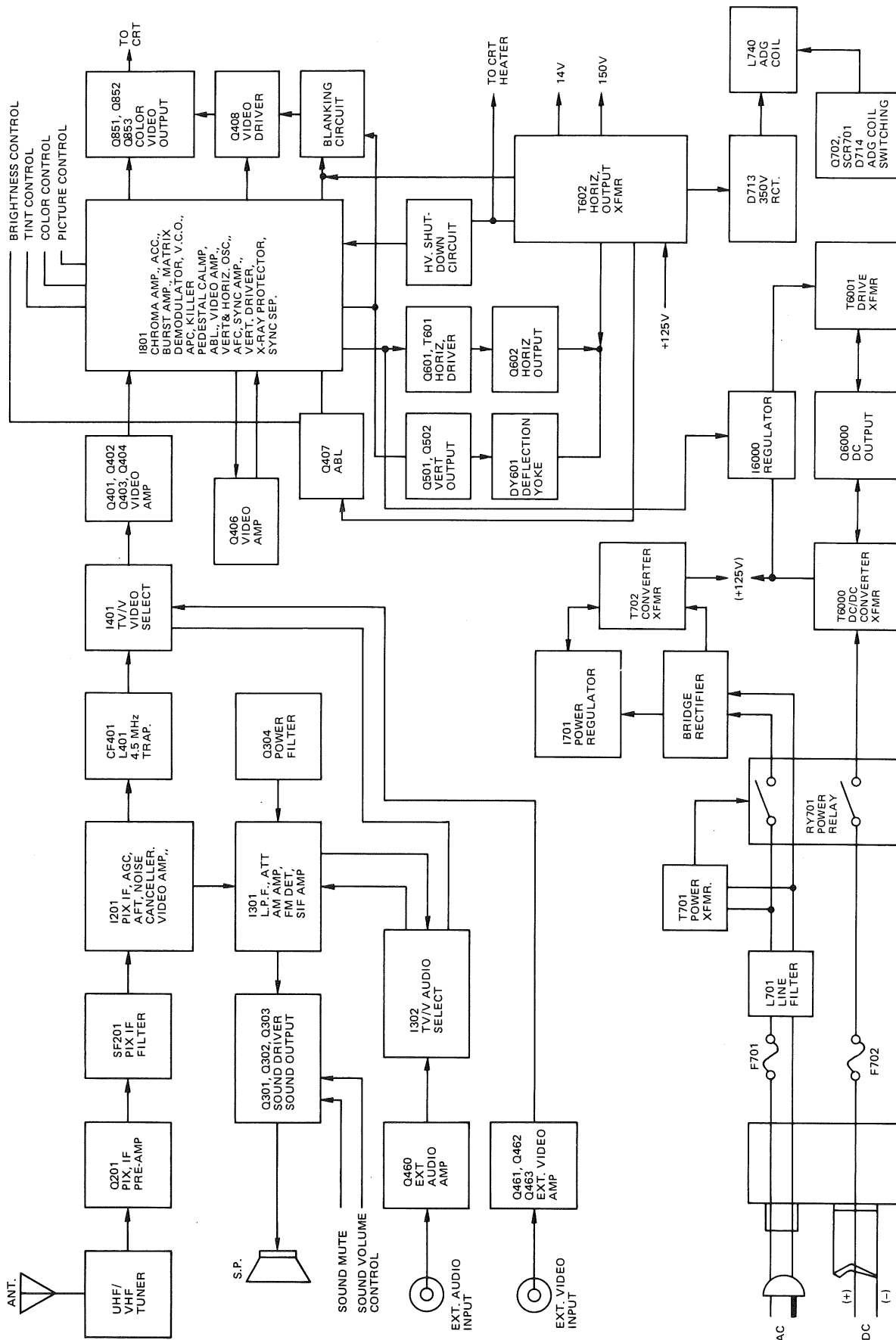
Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "Δ" and shaded areas in the Replacement Parts Lists and Schematic Diagrams. For continued protection, replacement parts must be identical to those used in the original circuit. The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

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### BLOCK DIAGRAM



**Figure 1. Main Chassis Block Diagram**

## CIRCUIT DESCRIPTION

### MANUAL CHANNEL SELECTION (Refer to Fig. 3)

#### Outline:

Model 9H102 is provided with the electronic varactor tuner which allows soft touch tuning of any desired channel: there are a total of 12 tuning buttons on the unit, each of which is presettable for any VHF low, VHF high or UHF channel.

You can select any of these 12 channels by proper use of the two channel tuning switches, one each for the channel RIGHT shift and the channel LEFT shift.

Due to the function of the initial channel setting, this IC provides automatic selection of CH. 2, when the power switch is switched on for the first time;

Besides, it also provide a channel display, band selection, as well as channel tuning.

### MANUAL CHANNEL SELECTION

Channel shift in this model is available with either RIGHT or LEFT direction; the channel RIGHT shift and channel LEFT shift circuits are based on the same principle so our descriptions are limited to the channel RIGHT shift circuit.

When the channel LEFT shift switch (SW3002) is pushed on, +B<sub>1</sub> voltage is applied to pin ② of NAND gate IC that works as a monostable multivibrator whose logical operations are shown in Fig. 3: the rising or falling edge of the pulse from the switch will produced a specified signal out of pin ③. The pulse width of this output signal is decided by the time constant provided of C1002 and R1005; R1006 is used to prevent an excess of discharge current coming from C1002. The output pulse from pin ⑪ of the NAND gate IC, then enters pin ⑬ of the channel sensor IC (I1002): a precise control of this IC1002 assured by the clock oscillator circuit included in. The clock oscillation frequency of 3 kHz by R1015 and C1009. With the negative pulse entering pin ⑬ of the I1002, the counter (inside the I1002) moves one channel LEFT, and one of the pins (① to ⑨, and ⑱ to ⑳) which corresponds to the new channel goes to a "Low" level, so that tuning voltage and band select voltage are applied to the electronic varactor tuner, with the channel indicator LED lighting up.

Tabulated below is a relationship among pin numbers of I1002 and the selected channel positions.

Pin No.	1	2	3	4	5	6	7	8	9	18	19	20
Ch. Position	e	f	g	h	i	j	k	l	a	b	c	d

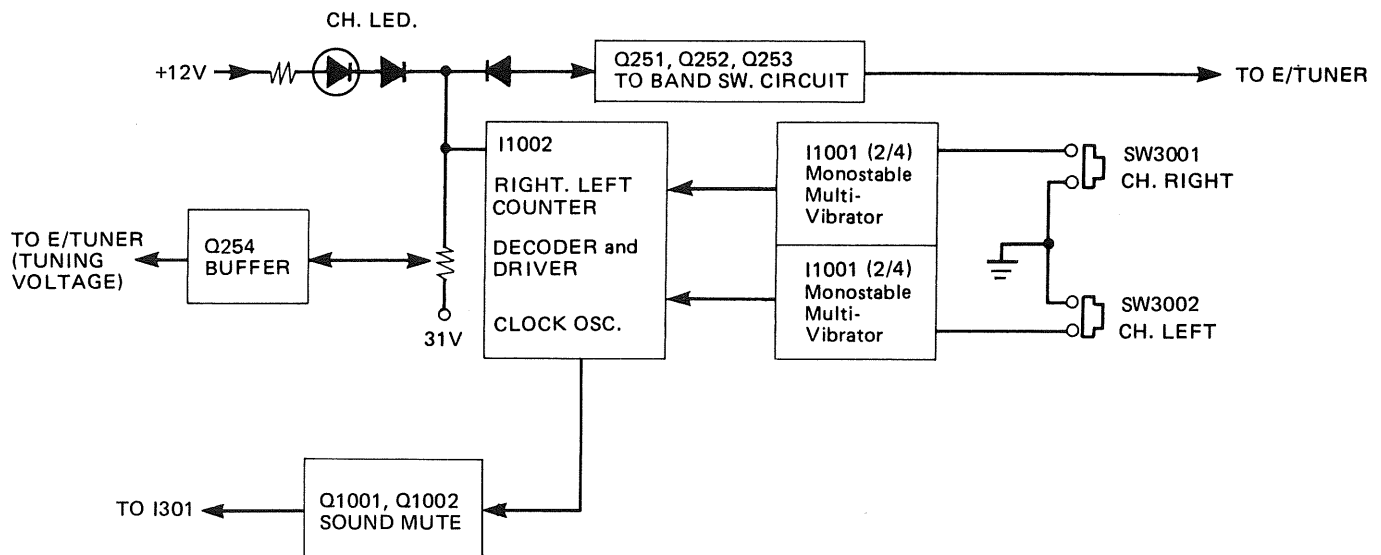


Figure 2. Electronic Tuning Block Diagram

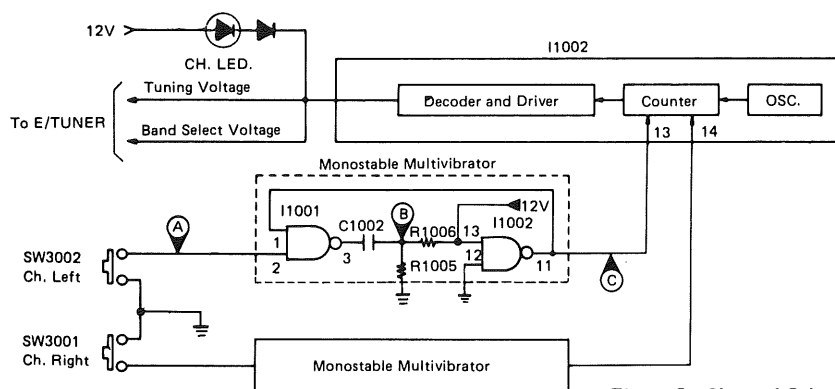


Figure 3. Channel Selection Circuit

### Band Selection (Refer to Fig. 4)

The models which include the electronic varactor tuner are mostly provided with 12 band selector switches: these switches are divided into three blocks, VHF Low (ch. 2 to ch. 6), VHF High (ch. 7 to ch. 13) and UHF (ch. 14 to ch. 83) which can be selected as desired. Namely, the band selector switch must be set to either of its three positions, then the corresponding output voltage is applied to either of the three terminals (BL, BH and BU) of the electronic varactor tuner, resulting in selection of either VHF Low, VHF High or UHF band.

#### 1. VHF Low Band Selection

When the band selector switch is set at "VHF Low" position, current is created at the base of Q1 and it runs through R2, band selector switch and D1 so that the Q1 becomes turned on. Thus, 12V is produced at the terminal "BL" so as to allow a selection of "VHF Low" band.

#### 2. VHF High Band Selection

When the band selector switch is set at "VHF High" position, current is created at the base of Q2 and it runs through R4, band selector switch and D1 so that the Q2 becomes turned on. Thus, 12V is produced at the terminal "BH" so as to allow a selection of "VHF High" band.

#### 3. UHF Band Selection

When the band selector switch is set at "UHF" position, current is created at the base of Q3 and it runs through R6, band selector switch and D1 so that the Q3 becomes turned on. Thus, 12V is produced at the terminal "BU" to allow a selection of "UHF" band.

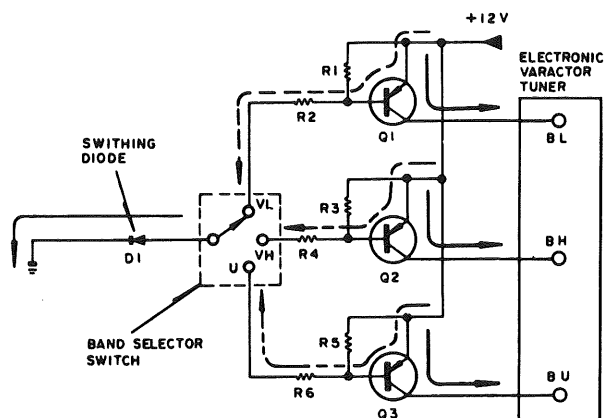


Figure 4. Band Selector Circuit

### MUTING CIRCUIT WITH CHANNEL SELECTION

The moment one channel is changed to another, a negative pulse shown in above figure arises at pin ⑪ of I1002, and is amplified by Q1001 to charge C1010. Then the resultant positive pulse enters Q1002 to put it in positive Bias, so that noises possibly caused with the channel changeover is muted: the muting time is decided by time constant assured by C1010, R1021, R1022 and R1023.

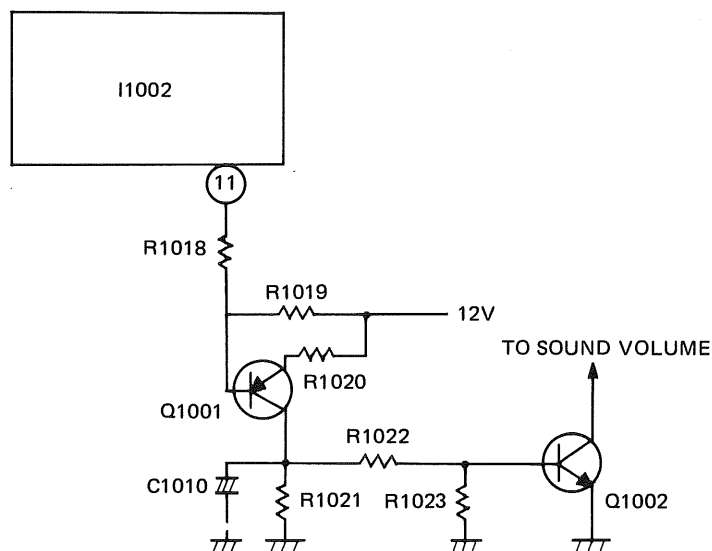


Figure 5.

## INSTALLATION AND SERVICE INSTRUCTIONS

- Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdriver or TV alignment tools.
- (2) Before performing adjustment T.V. set must be on at least 15 minutes.

### CIRCUIT PROTECTION

The entire receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, that is wired into one side of the AC line input.

### X-RADIATION PROTECTION CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, or B+ system, the X-Radiation protection circuit must be tested for proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Connect positive lead of voltmeter to TP701, on PWB-A: Negative lead to chassis ground. The reading should be between +123V and +127V.
4. Check the voltage of test point TP601. (It's voltage should be about 18.0V DC.)
5. Connect the cathode of diode D503, and TP601 through a 6.8k ohm, 1/2W resistor.  
When these points are connected, the operation of horizontal oscillator is stopped.
6. To start operation, remove the resistor and touch the TP602 to chassis ground with a short clip lead. (Remove short clip lead as soon as the set operates again with a normal picture.)
7. If the operation of the horizontal osc. does not stop in step 5, the circuit must be repaired, before the set is returned to the customer.

### HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified:

1. Operate receiver for at least 15 minutes at 120V AC line voltage, with strong air signal or test signal properly tuned.
2. Open the circuit switch SW851 on PWB-B.
3. Rotate Screen control (on T602) to maximum (CCW) end of its rotation.
4. Connect an accurate high voltage meter to the CRT anode. The reading should be between 19.5kV and 21.0kV. (zero beam)

If a correct reading cannot be obtained, check circuitry for malfunctioning components. Upon completion of voltage check, readjust Screen control for proper operation as detailed in BLACK AND WHITE TRACKING procedure.

## INSTALLATION AND SERVICE INSTRUCTIONS

### Field Adjustment

#### RF. AGC. Adjustment

- (1) Turn channel selector to a local station.
- (2) AFT switch in "off" position.
- (3) Fine tune to best picture.
- (4) Turn RF AGC control (R215) fully clockwise until snow and/or noise appear in picture, then slowly turn control counter-clockwise until snow and/or noise disappear.
- (5) Check all other channels.

#### AFT Adjustment

- (1) Turn AFT switch or button to the "off" position.
- (2) Turn selector to a local channel and adjust fine tuning control for best picture and sound. Repeat this procedure for all local channels.
- (3) Turn and/or push AFT switch "on" to lock in all channels.
- (4) Check all channels with AFT switch "on".

#### Horizontal Hold Adjustment

- (1) Turn channel selector to a local station.
- (2) Adjust horizontal hold control (R609) to stabilize picture.
- (3) Check all channels for stable picture.

#### Vertical Hold Adjustment

- (1) Turn channel selector to a local station.
- (2) Adjust vertical hold control (R519) to stabilize picture.
- (3) Check all channels for a stable picture.

#### Vertical Size Adjustment

- (1) Turn channel selector to a local station.
- (2) Check vertical hold, brightness and picture controls for a normal picture.
- (3) Adjust vertical size control (R504) for approximately one-half inch over-scan at top and bottom of picture screen.

#### Sub-Bright Control

- (1) Turn channel selector to a local station.
- (2) Turn picture control (R445) fully clockwise and set bright control (R428) at the center position.
- (3) Turn sub-bright control (R429) to obtain normal brightness of the picture.

#### Focus Adjustment

- (1) Turn channel selector to a local station.
- (2) Set brightness and picture control at a normal viewing level.
- (3) Adjust focus control (part of T602) for sharp scanning lines and/or sharp picture.

**NOTE:** All field adjustments mentioned can be performed without test equipment.

If any adjustments mentioned do not correct the problem condition, please refer to the technical manual "H5" Chassis for further diagnoses.



# PRINTED WIRING BOARD ASSEMBLIES

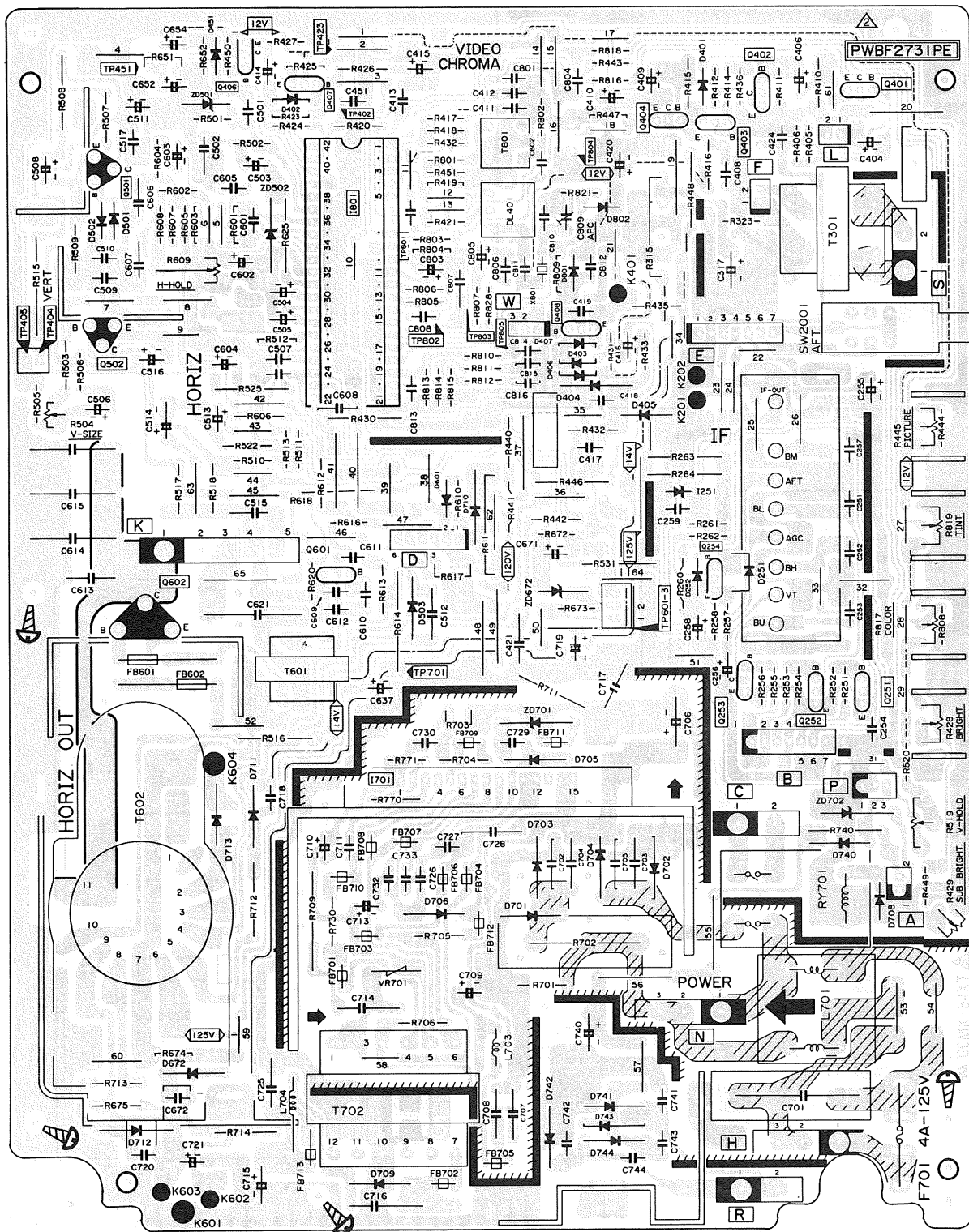
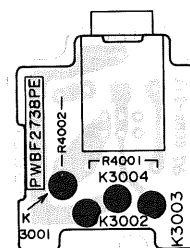


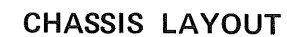
Figure 6. PWB-A Wiring Side

A horizontal number line with tick marks labeled 1 through 6.



**Figure 7. PWB-B Wiring Side**






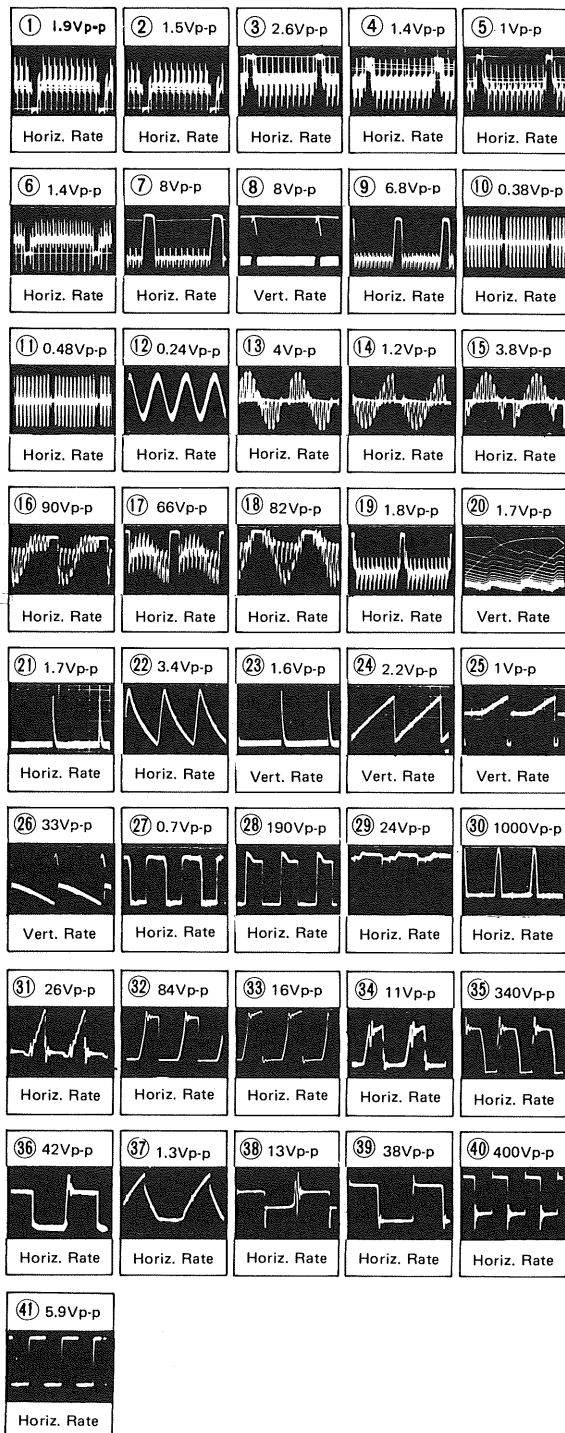
**Figure 14. Chassis Layout**



## WAVEFORMS

### WAVEFORM MEASUREMENT CONDITIONS:

1. Photographs taken on a standard gated rainbow color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.
2.  indicates wave form check points (See chart, waveforms are measured from point indicated to chassis ground.)



### NOTE:

1. The unit of resistance "ohm" is omitted (K:1000 ohms, M:1 Meg ohm).
2. All resistors are 1/8 watt, unless otherwise noted.
3. All capacitors are  $\mu F$ , unless otherwise noted as P- $\mu F$ .
4. (G) indicates  $\pm 2\%$  tolerance may be used.

### VOLTAGE MEASUREMENT CONDITIONS:

1. All DC voltages are measured with VTVM connected between points indicated and chassis ground, with line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.
2. All voltages measured with 1000 $\mu V$  B & W or Color signal.

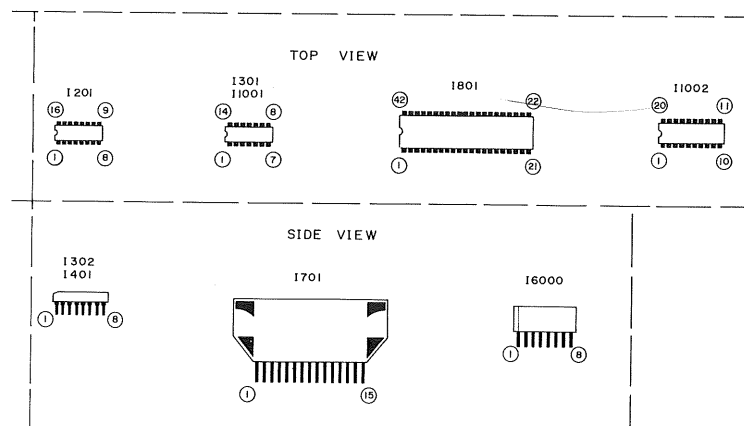
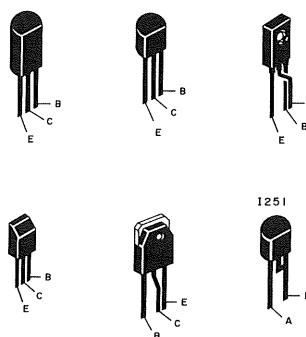
**▲ AND SHADED COMPONENTS: SAFETY RELATED PARTS, ▲ MARK: X-RAY RELATED PARTS.**

This Circuit diagram is a standard one. Circuits printed may be subject to change, for product improvement, without prior notice.

### INDICATION OF E-TUNER TERMINAL VOLTAGE

CH	VT	BL	BH	BU
2 to 6	1.1V to 15.7V	11.6V	0V	0V
7 to 13	6.3V to 13.9V	9.9V	11.3V	0V
14 to 83	1.0V to 21.8V	0V	0V	11.2V

### SOLID STATE DEVICE BASE DIAGRAM



Ref. No.	Part No.	*	Description	Ref. No.	Part No.	*	Description
C420	VCEAAA1CW477M	J	470μF, 16V, Electrolytic	△R611	VRS- VV3LB822J	J	8.2k ohm, 5%, 3W, Oxide Film
C461	RC- EZ0025GEZZ	J	470μF, 16V, Electrolytic	△R614	VRS- VV3LB332J	J	3.3k ohm, 5%, 3W, Oxide Film
C504	VCSATA1VE224K	J	0.22μF, 35V, Tantalum	R618	VRS- VV3AB331J	J	330 ohm, 5%, 1W, Oxide Film
C506	VCSATA1VE684K	J	0.68μF, 35V, Tantalum	▲△R672	VRD- RA2BE562J	J	5.6k ohm, 5%, 1/8W, Carbon
C509	VCKYPA2HB471K	J	470pF, 500V, Disc	▲△R672	VRD- RA2BE222J	J	2.2k ohm, 5%, 1/8W, Carbon
C510	VCKYPA2HB221K	J	220pF, 500V, Disc	▲△R674	VRD- RA2BE103J	J	10k ohm, 5%, 1/8W, Carbon
C512	VCKYPB3AB102K	J	0.001μF, 1kV, Disc	▲△R675	VRD- RA2EE270J	J	27 ohm, 5%, 1/4W, Carbon
C513	VCSATA1VE105K	J	1μF, 35V, Tantalum	△R701	VRD- RA2HD824J	J	820k ohm, 5%, 1/2W, Carbon
C514	VCEAAH1EW108M	J	1000μF, 25V, Electrolytic	△R702	VRW- KV3NC2R7K	J	2.7 ohm, 10%, 7W, Cement
△C516	VCEAAA1HW476M	J	47μF, 50V, Electrolytic	△R703	RR- WZ0042CEZZ	J	1.5 ohm, 10%, 3W, Cement
C517	VCKYPA2HB471K	J	470pF, 500V, Disc	▲△R704	VRD- RA2EE392J	J	3.9k ohm, 5%, 1/4W, Carbon
C610	VCCSPA2HL100D	J	10pF, 500V, Disc	△R705	VRD- RA2HD223J	J	22k ohm, 5%, 1/2W, Carbon
C611	VCKYPA2HB102K	J	0.001μF, 500V, Disc	△R706	VRD- RA2HD823J	J	82k ohm, 5%, 1/2W, Carbon
C612	VCCSPA2HL470K	J	47pF, 500V, Disc	R709	VRS- VV3DB390J	J	39 ohm, 5%, 2W, Oxide Film
▲△C613	VCKYPU3SB501K	J	500pF, 3kV, Disc	△R711	VRC- UA2HG105K	J	1Meg ohm, 10%, 1/2W, Carbon
▲△C614,	VCFPPC3CA222J	J	0.0022μF, 1.6kV, Metalized	△R712	VRN- RV3AA1R0J	J	1 ohm, 5%, 1W, Metal Film
▲△ 615		J	Polypro	△R713	VRS- SV2HC100J	J	10 ohm, 5%, 1/2W, FR Oxide Film
C621	VCFPPC2DB394J	J	0.39μF, 200V, Metalized Polypro				
▲△C671	VCEAAA1CW106M	J	10μF, 16V, Electrolytic	△R714	VRS- SV2HB1R8J	J	1.8 ohm, 5%, 1/2W, FR Oxide Film
△C701	RC- QZ012DCEZZ	J	0.1μF, UL Spec. AC 125V Nonpolar	△R730	VRS- SV2HC150J	J	15 ohm, 5%, 1/2W, FR Oxide Film
C702	VCKYPB2HB103P	J	0.01μF, 500V, Disc	△R740	VRS- VU3AB220J	J	22 ohm, 5%, 1W, Oxide Film
705				△R867,	VRS- VU3AB123J	J	1.2k ohm, 5%, 1W, Oxide Film
△C706	RC- EZ0082CEZZ	J	470μF, 200V, Electrolytic	△ 869,			
C707,	VCKYPB2HE103P	J	0.01μF, 500V, Disc	△ 871			
708				△R6002	VRD- RA2HD150J	J	15 ohm, 5%, 1/2W, Carbon
△C709	RC- EZ0033GEZZ	J	10μF, 250V, Electrolytic				
△C710	VCEAAA1HW475M	J	4.7 μF, 50V, Electrolytic				
C711	VCKYPA2HB102K	J	1000pF, 500V, Disc				
△C713	VCEAAA1HW476M	J	47μF, 50V, Electrolytic				
C714	RC- QZ0006CEZZ	J	1500pF, 1kV, Disc				
△C715	VCEAAH2CW107M	J	100μF, 160V, Electrolytic				
C716	RC- QZ0006CEZZ	J	1500pF, 1kV, Disc				
△C717	RC- KZ0030CEZZ	J	3300pF, AC 125V, Disc				
C718	VCKYPA2HB152K	J	1500pF, 500V, Disc				
△C719	VCEACA1EC476M	J	47μF, 25V, Electrolytic				
C720	VCKYPA2HB102K	J	0.001μF, 500V, Disc				
△C721	RC- EZ0033GEZZ	J	10μF, 250V, Electrolytic				
C722	VCFYSB2GB225K	J	2.2μF, 400V, Metalized Polypro				
C725	VCKYPB2HB103K	J	0.01μF, 500V, Disc				
C727	VCKYPA2HB102K	J	1000pF, 500V, Disc				
C728	RC- QZ0005CEZZ	J	1000pF, 1kV, Disc				
C729,	VCKYPA2HB102K	J	1000pF, 500V, Disc				
730,							
733,							
735							
△C740	RC- EZ0081CEZZ	J	2200μF, 25V, Electrolytic				
C809	RTô- S1002AEZZ	J	Ceramic Trimmer, 30pF, 3.58MHz Adjust				
C855	RC- KZ004JCEZZ	J	0.01μF, 1.4kV, Disc				
C1106	RC- EZ0025GEZZ	J	470μF, 16V, Electrolytic				
△C6000	RC- EZ0081CEZZ	J	2200μF, 25V, Electrolytic				
C6001	VCKYPA2HB821K	J	820pF, 500V, Disc				
C6002	VCKYPA2HB102K	J	1000pF, 500V, Disc				
▲△C6004	RC- EZ0085CEZZ	J	22μF, 160V, Electrolytic				
RESISTORS							
△R315	VRS- VU3DB392J	J	3.9k ohm, 5%, 2W, Oxide Film				
R442	VRS- SV2HC103J	J	10k ohm, 5%, 1/2W, FR Oxide Film				
R508	VRS- VV3AB331J	J	330 ohm, 5%, 1W, Oxide Film				
△R515	VRS- VV3DB330J	J	33 ohm, 5%, 2W, Oxide Film				
△R516	VRS- VU3AB100J	J	10 ohm, 5%, 1W, Oxide Film				
R517	VRD- RA2HD392J	J	3.9k ohm, 5%, 1/2W, Carbon				
				</			





REPLACEMENT PARTS LIST

**SAFETY NOTE** – Components marked with a ( ▲ ) have special characteristics important to safety. Before replacing any of these components, read carefully the SAFETY NOTICE on page 3 of the Service Manual. Components marked with an ( ▲ ) are related to X-Ray Protection circuit.

**HOW TO ORDER REPLACEMENT PARTS** – To have your order filled promptly and correctly, please furnish the following information:

1. MODEL NO.                      2. PART NO.                      3. DESCRIPTION

Contact your nearest SHARP Parts Distributor to order.

For location of SHARP Parts Distributor, Please call Toll-Free; 800-447-4700 (In Hawaii and Alaska, please contact local SHARP dealer).

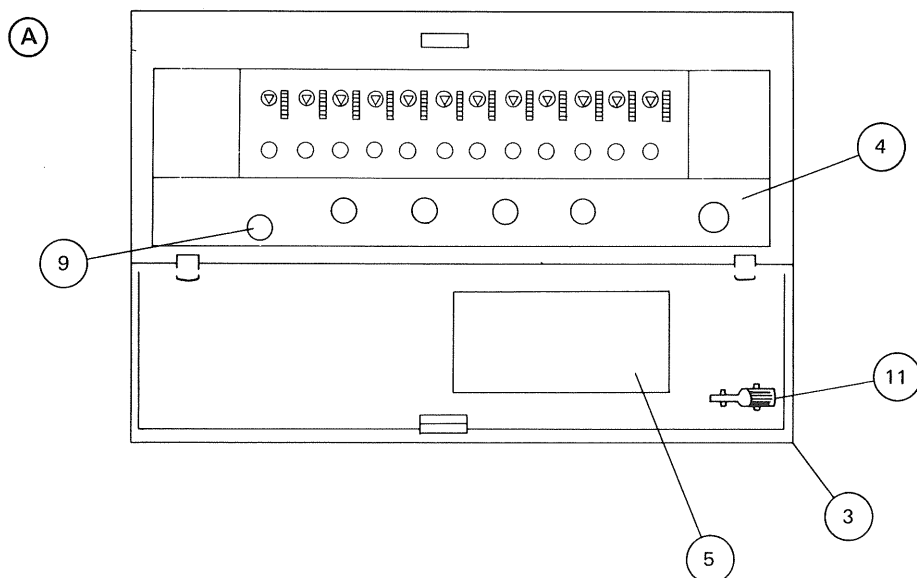
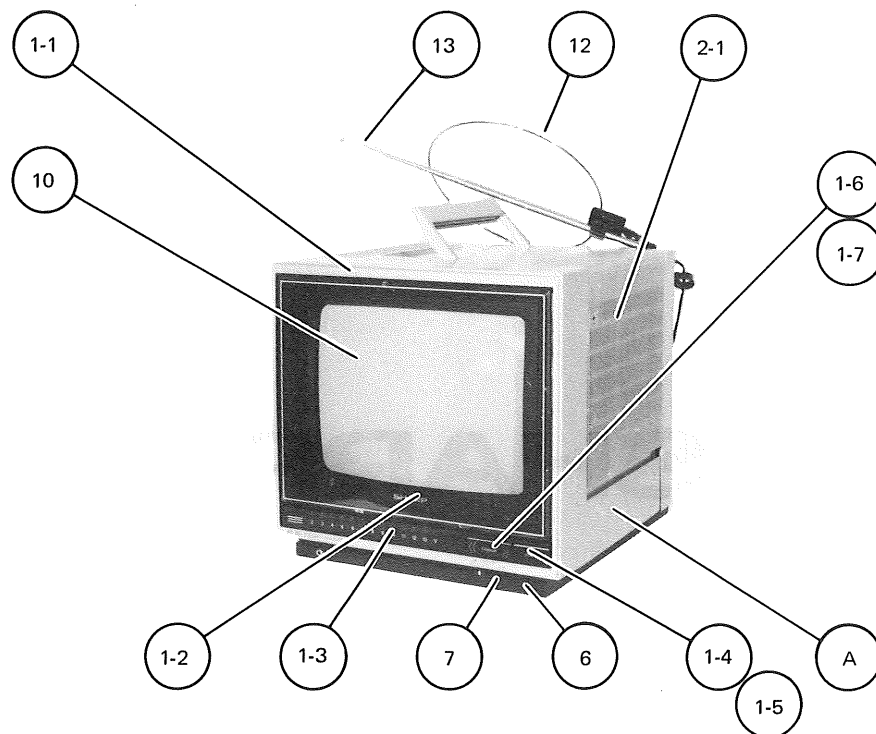
★ MARK: SPARE PARTS-DELIVERY SECTION

Ref. No.	Part No.	*	Description	Ref. No.	Part No.	*	Description
TUNER				Q301	VS 2 SC 1 8 9 0 AD- 1	J	Sound Driver [2SC1890A(D)]
△	VT UV T K- 7 U/ / / /	J	82 Channel Varactor Tuner	Q302	VS 2 SC 2 3 8 3 / / 1 E	J	Sound Output [2SC2383]
				Q303	VS 2 SA 1 0 1 3 / / 1 E	J	Sound Output [2SA1013]
				Q304	VS 2 SC 1 8 1 5 YW- 1	J	Power Filter [2SC1815(Y)]
				Q401	VS 2 SC 4 5 4 - C / 1 E	J	Video Amplifier [2SC454(C)]
				Q402, 403	VS 2 SA 1 0 1 5 Y / 1 E	J	Video Amplifier [2SA1015(Y)]
NOTE: FOR TUNER REPAIRS, ORDER A COMPLETE REPLACEMENT TUNER.				Q404, 406	VS 2 SC 1 8 1 5 YW- 1	J	Video Amplifier [2SC1815(Y)]
CHASSIS				Q407	VS 2 SC 1 8 1 5 YW- 1 or VS 2 SC 4 5 4 - C / 1 E	J	A.B.L [2SC1815(Y) or 2SC454(C)]
PRINTED WIRING BOARD ASSEMBLES				Q408	VS 2 SA 8 5 4 - Q / 1 E or VS 2 SA 6 7 3 - C / 1 E	J	Video Driver [2SA854(Q) or 2SA673(C)]
PWB-A	Not Available	—	Main Chassis Board Assembly	Q460	VS 2 SC 1 8 1 5 YW- 1	J	Ext. Audio Amplifier [2SC1815(Y)]
PWB-B	Not Replaceable	—	R.G.B. Output Board Assembly	Q461	VS 2 SC 1 8 1 5 YW- 1	J	Ext. Video Amplifier [2SC1815(Y)]
PWB-C	Not Replaceable	—	Headphone Board Assembly	Q462	VS 2 SA 1 0 1 5 YW- 1	J	Ext. Video Amplifier [2SA1015(Y)]
PWB-D	Not Replaceable	—	Sensor Board Assembly	Q463	VS 2 SC 1 8 1 5 GW- 1	J	Ext. Video Amplifier [2SC1815(GR)]
PWB-E	Not Replaceable	—	LED Board Assembly	Q501, 502	VS 2 SD 7 9 4 AL B 1 E or VS 2 SC 2 7 9 4 L B 1 E	J	Vert. Ouput [2SD794A or 2SC2794]
PWB-F	Not Replaceable	—	Switch Board Assembly	Q601	VS 2 SC 2 4 8 2 / / - 1 or VS 2 SC 2 6 1 0 K / 1 E	J	Horiz. Driver
PWB-G	Not Replaceable	—	DC/DC Board Assembly	△ Q602	VS 2 SD 1 3 9 6 / - CA	J	Horiz. Output
PWB-H	Not Replaceable	—	Power Board Assembly	Q702	VS 2 SA 1 0 1 5 G / 1 E	J	Switch [2SA1015(G)]
PWB-I	Not Replaceable	—	Antenna, Ext. Audio Video Input Terminal Board Assembly	Q851	VS 2 SC 2 2 2 9 ô / - 1 or VS 2 SC 1 9 2 1 / / - 1	J	Red Output [2SC2229(ô) or 2SC1921 or 2SC2482]
PICTURE TUBE				Q852	VS 2 SC 2 4 8 2 / / - 1 or VS 2 SC 2 2 2 9 ô / - 1	J	Green Output [2SC2229(ô) or 2SC1921 or 2SC2482]
△△ V101	VB 2 7 0 AL B 2 2 / - S	J	CRT [270ALB22]	Q853	VS 2 SC 2 2 2 9 ô / - 1 or VS 2 SC 1 9 2 1 / / - 1	J	Blue Output [2SC2229(ô) or 2SC1921 or 2SC2482]
INTEGRATED CIRCUITS				Q1001	VS 2 SA 6 7 3 - C / 1 E	J	Mute [2SA673(C)]
I201	RH- i X0 2 5 2 CE ZZ	J	AFT, AGC & Pix Processor	Q1002	VS 2 SC 1 8 1 5 GW- 1	J	Mute [2SC1815(GR)]
I251	RH- i X0 0 3 7 CE ZZ	J	Zener IC	△ Q6000	VS 2 SC 3 3 0 0 / / 1 E	J	Switching [2SC3300]
I301	RH- i X0 2 1 3 CE ZZ	J	Sound IF & Sound Amplifier	DIODES			
I302, 401	VHi LA 7 0 1 6 / / - 1	J	Wide Switching	D251	VHD1 SS 1 1 9 / / 1 E	J	Protector [1SS119]
△△ I701	RH- i X0 3 0 8 CE ZZ	J	Power Regulator	D252	VHD1 SS 1 1 9 / / 1 E	J	Compensator [1SS119]
△△ I801	RH- i X0 2 1 2 CE ZZ	J	Sync. X-Ray Protector, Defl. Video & Chroma Protector	D401	VHD1 SS 1 1 9 / / 1 E	J	Bias [1SS119]
I1001	RH- i X0 0 7 2 CE ZZ	J	NAND Gate				
I1002	RH- i X0 2 0 0 CE ZZ	J	Up-Down Counter/Decorder & Drive				
△△ I6000	RH- i X0 2 4 8 CE ZZ	J	Error Amp.				
TRANSISTORS							
Q201	VS 2 SC 1 9 0 6 / / 1 E	J	Pix IF Amplifier [2SC1906]				
Q251	VS 2 SA 1 0 1 5 Y / 1 E	J	VL Band Switch [2SA1015(Y)]				
Q252	VS 2 SA 1 0 1 5 Y / 1 E	J	VH Band Switch [2SA1015(Y)]				
Q253	VS 2 SA 1 0 1 5 Y / 1 E	J	U Band Switch [2SA1015(Y)]				
Q254	VS 2 SC 1 8 9 0 AE- 1	J	Buffer [2SC1890A(E)]				

Ref. No.	Part No.	★	Description	Ref. No.	Part No.	★	Description
D402	VHD1SS119 / / 1E	J	Protector [1SS119]	COILS AND TRANSFORMERS			
D403	VHD1SS119 / / 1E	J	Slicer [1SS119]	L201	VP- RFR82K0000	J	0.82μH, Tuning
D404	VHD1N34A / / / - 1	J	Clamper [1N34A]	L202	VP- MK2R2K0000	J	2.2μH, Filter
D405, 406, 407	VHD1SS119 / / 1E	J	Clamper [1SS119]	L203	VP- RFR47K0000	J	0.47μH, Filter
D451	VHD1SS119 / / 1E	J	Noise Limiter [1SS119]	L204	VP- RFR56K0000	J	0.56μH, Filter
D501	VHD1SS119 / / 1E	J	Protector [1SS119]	L205	RCi LP0073CEZZ	J	180MHz, Filter
D502	VHD1SS119 / / 1E	J	Bias [1SS119]	L206	RCi Li 0332CEZZ	J	Pix IF, Detector
▲ D503	RH- DX0132CEZZ	J	Rectifier	L207	RCi Li 0373CEZZ	J	AFT
D601	VHD1SS119 / / 1E	J	Protector [1SS119]	L301	VP- MK220K0000	J	22μH, Trap
▲▲ D672	RH- DX0130CEZZ	J	Rectifier	L401	VP- MK100K0000	J	10μH, 4.5MHz Trap
▲ D701	RH- DX0110CEZZ	J	Power Rectifier, +125V	▲ L701	RCi LF0005GEZZ	J	Line Filter
▲ 704				L703	RCi LP0050CEZZ	J	150μH, Filter
D705, 706	RH- DX0130CEZZ	J	Protector	L704	VP- CF100K0000	J	10μH, Filter
D708	VHD1SS119 / / 1E	J	Protector [1SS119]	▲ L740	RCi LG0004PEZZ	R	Automatic Degaussing
▲ D709, 710	RH- DX0125CEZZ	J	Rectifier, +125V	L851	VP- LK221K0000	J	220μH, Filter
▲ D711	RH- DX0131CEZZ	J	Rectifier, +14V	L6000	VP- CF100K0000	J	10μH, Filter
▲ D712	RH- DX0086TAZZ	J	Rectifier, +150V	L6001	VP- CF470K0000	J	47μH, Filter
D713	RH- DX0085TAZZ	J	Rectifier	T301	RTRNS0005PEZZ	R	Sound Output
D714	RH- DX0164CEZZ	J	Switching	T601	RTRNZ0001PEZZ	R	Horiz. Drive
▲ D740	RH- DX0131CEZZ	J	Protector	▲▲ T602	RTRNF0008PEZZ	R	Horiz. Output (w/Focus and Screen Controls and H.V. Rectifier)
D741	RH- DX0110CEZZ	J	Power Rectifier, +125V	▲ T701	RTRNP0268CEZZ	J	Power Transformer
744				▲▲ T702	RTRNZ0219CEZZ	J	Convert Transformer
D801, 802	VHD1SS119 / / 1E	J	Protector [1SS119]	T801	RCi LV0118CEZZ	J	Band- Pass Filter
D1001	VHD1SS119 / / 1E	J	Switching [1SS119]	▲ T6000	RTRNZ0023TAZZ	J	Drive Trans
1036				T6001	RTRNZ0130CEZZ	J	DC/DC Convert Transformer
D2001	RH- PX0093CEZZ	J	LED, Channel Indicator	▲▲ DY601	RCi LH0005PEZZ	R	Deflection Yoke
2012				DL401	RCi LZ0372CEZZ	J	Delay Line
D2013	RH- PX0101CEZZ	J	LED, VTR Indicator	▲ RY701	RRLYU0015CEZZ	J	Power Relay
D6000	RH- DX0128CEZZ	J	Protector	CONTROLS			
D6001	RH- DX0130CEZZ	J	Rectifier	R215	RVR- B0007PEZZ	R	10kohm, RF AGC
▲ D6002	RH- DX0125CEZZ	J	Rectifier	R428	RVR- B4693CEZZ	J	2kohm, Brightness
D6003	RH- DX0055CEZZ	J	Protector	R429	RVR- M7198TAZZ	J	5kohm, Sub Brightness
D6004, 6005	VHD1SS119 / / 1E	J	Protector [1SS119]	R445	RVR- B4686CEZZ	J	10kohm, Picture
OTHER SEMICONDUCTORS				R504	RVR- B0021PEZZ	R	20kohm, Vert. Size
ZD501	RH- EX0019TAZZ	J	Zener Diode, +12V	R519	RVR- B4739CEZZ	J	300kohm, Vert. Hold
ZD502	RH- EX0021TAZZ	J	Zener Diode, +10V	R609	RVR- B4461CEZZ	J	10kohm, Horiz. Hold
▲▲ ZD672	RH- EX0151CEZZ	J	Zener Diode, +22V	R817	RVR- B4686CEZZ	J	10kohm, Color
ZD701	RH- EX0136CEZZ	J	Zener Diode, +3.6V	R819	RVR- B4686CEZZ	J	10kohm, Tint
ZD702	RH- EX0038CEZZ	J	Zener Diode, +12V	R854	RVR- B4732CEZZ	J	5kohm, Red Bias
▲▲ SCR701	VHS03P4MG / / - 1	J	Silicon Controlled Rectifier	R859	RVR- B4732CEZZ	J	5kohm, Green Bias
PACKAGED CIRCUITS				R860	RVR- B4562CEZZ	J	300ohm, Green Drive
CF301	RFi LC0001CEZZ	J	Ceramic Filter, Sound Take-off	R864	RVR- B4732CEZZ	J	5kohm, Blue Bias
CF302	RFi LC0066CEZZ	J	Ceramic Filter	R865	RVR- B4562CEZZ	J	300ohm, Blue Drive
CF401	RFi LC0013CEZZ	J	Ceramic Filter, 4.5MHz Trap	SW1001/	RVR- Y4069CESA	J	Band Selection Switch and Preset Fine Tuning
SF201	RFi LC0042CEZZ	J	Surface Acoustic Wave Filter, Pix IF	R1019			
X801	RCRSB0027CEZZ	J	Crystal, 3.58MHz	R3001	RVR- B3043CEZZ	J	50kohm, Sound Volume
CM1001, 1002	RMPTE0002CEZZ	J	Multiple Capacitor	CAPACITORS			
C227	RC- EZ0043GEZZ	J		C227	RC- EZ0043GEZZ	J	1000μF, 16V, Electrolytic
C255	VCEAAA1CW477M	J		C255	VCEAAA1CW477M	J	470μF, 16V, Electrolytic
C311	VCKYPA2HB471K	J		C311	VCKYPA2HB471K	J	470pF, 500V, Disc
C314	VCEAAA2CW105M	J		C314	VCEAAA2CW105M	J	1μF, 160V, Electrolytic
C315	VCEAAA2AW225M	J		C315	VCEAAA2AW225M	J	2.2μF, 100V, Electrolytic
▲ C317	VCEAAH2CW107M	J		▲ C317	VCEAAH2CW107M	J	100μF, 160V, Electrolytic
C324	VCEAAA1EW227M	J		C324	VCEAAA1EW227M	J	220μF, 25V, Electrolytic
C327	VCKYPA2HB102K	J		C327	VCKYPA2HB102K	J	1000pF, 500V, Disc
C330	VCKYPA2HB471K	J		C330	VCKYPA2HB471K	J	470pF, 500V, Disc
C417	VCCSPA2HL470K	J		C417	VCCSPA2HL470K	J	47pF, 500V, Disc



Ref. No.	Part No.	*	Description	Ref. No.	Part No.	*	Description
<b>CABINET PARTS</b>				3	GCōRF0006PEKA	R	Door
1	CWAKP6924DE01	J	Cabinet Complet, Front Mask	4	HiNDM0015PESA	R	Indication Plate, Indoor Controls
1-1	Not Available	—	Front Mask	5	TLABH0001PEZZ	R	Lable, Indoor Controls
1-2	HBDGD0004PESA	R	Badge "SHARP"	6	GCABA6839PEKA	R	Cabinet, Bottom (A)
1-3	HiNDM0025PESA	R	Indication Plate, Channel	7	JKNBP0003PEKA	R	Knob, Volume
1-4	HiNDM0013PESB	R	Indication Plate, Power	8	JHNDP0003PEKA	R	Handle
1-5	JKNBP1077CEKA	J	Knob, Power	9	JBTN-1007CE00	J	Button, AFT
1-6	HiNDM0014PESB	R	Indication Plate, Channel	10	BCōVA1135CEKA	J	Front, Cover
1-7	JKNBP1078CEKA	J	Knob, Power	11	UKōGD0010CE00	J	Preset Adjust Driver
2	CCABB6924DE01	J	Cabinet Complet, (B)	12	QTATL0024CEZZ	J	Antenne (Loop), UHF
2-1	Not Available			13	QTATR0026CEZZ	J	Antenne VHF



**SHARP**